

**ABSTRACT OF THE DISCLOSURE**

The invention discloses a method and apparatus for determining the volume of single red blood cells or other particles that are suspended in liquids. The sample is disposed into an optical cuvette suitable for microscopic analysis. A fluorescent dye is added that does not leak into the cells, and that is able to absorb excitation light and emit fluorescence light at wavelengths that are only weakly absorbed by the cells. The cell volume is determined using fluorescence intensity values measured (i) in a first area comprising a single cell, (ii) in a second area close to that cell, and (iii) in said second area, after changing the cuvette thickness by a known amount.

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